

I CLAIM:

1. A computer-assisted surgery system for guiding an operator in altering a pelvis for a subsequent insertion of a pelvic implant, comprising:
 - 5 a sensing apparatus adapted to track a reference tool securable to the pelvis and a bone altering tool for position and orientation;
 - a position calculator connected to the sensing apparatus for calculating a position and orientation of a pelvic frame of reference as a function of the position and orientation of the reference tool, and for calculating a position and orientation of the bone altering tool with respect to the frame of reference when altering the pelvis;
 - 15 a source of posture data;
 - a posture data correction calculator operative to provide a display of information allowing an operator to take into consideration said posture data from the source of posture data when altering the pelvis; and
 - 20 a display unit connected to the position calculator and to the posture data correction calculator for displaying said display of information and the position and orientation of the bone altering tool with respect to the pelvic frame of reference.
2. The computer-assisted surgery system according to claim 1, wherein said display of information is a corrected view of the frame of reference with respect to said posture data on the display unit.
3. The computer-assisted surgery system according to claim 1, wherein said display of

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information is additional information relating the frame of reference to said posture data.

4. The computer-assisted surgery system according to claim 3, wherein said additional
5 information includes an anteversion value and an inclination value of the bone altering tool related to said posture data.

5. The computer-assisted surgery system according to any one of claims 1 to 5, wherein the
10 source of posture data is a registration tool trackable for position and orientation, the registration tool being used with the position calculator to digitize a plane supporting the patient in a given posture with respect to the frame of
15 reference, said posture data being associated with an orientation of said plane.

6. A posture data correction calculator program product comprising code means recorded in a computer-readable memory for executing functions of
20 the posture data correction calculator defined in any one of claims 1 to 5.

7. A method for guiding an operator in altering a pelvis for a subsequent insertion of a pelvic implant in computer-assisted surgery,
25 comprising the steps of:

creating a frame of reference related to geometry information of a pelvis, the frame of reference being trackable for position and orientation;

obtaining a pelvic orientation relating to a given posture of the patient with respect to the frame of reference; and

altering the acetabulum for a subsequent
5 insertion of the pelvic implant in the acetabulum by presenting information about a current implant orientation with respect to said pelvic orientation, the current implant orientation being calculated as a function of a tracking of a surgical tool altering
10 the acetabulum for receiving the pelvic implant, and of the frame of reference.

8. The method according to claim 7, wherein said pelvic orientation is a function of an orientation of a plane supporting the patient in the
15 given posture.

9. The method according to claim 8, wherein the current implant orientation comprises at least one of an anteversion value and an inclination value related to the orientation of the plane.

20 10. The method according to claim 7, wherein the current implant orientation is at least one of an anteversion value and an inclination value related to said pelvic orientation.

11. The method according to claim 10, wherein
25 any one of the anteversion value and the inclination value is related to said pelvic orientation by a display interface displaying a pelvis image oriented to said pelvic orientation in combination with an axis of any one of the anteversion value and the
30 inclination value.

12. The method according to claim 10, wherein any one of the anteversion value and the inclination value is calculated taking into account the orientation of the plane of reference with respect to the frame of reference.

13. The method according to claim 7, wherein the current implant orientation is related to said pelvic orientation by a display interface displaying a pelvis image oriented to said pelvic orientation in combination with the current implant orientation.

14. The method according to any one of claims 7 to 13, wherein the method is performed on an anatomical bone model or on a cadaver.

15. A method for associating a frame of reference of a pelvis to a given posture of a patient in computer-assisted surgery, comprising the steps of:

creating a frame of reference of a pelvis by registering points on the pelvis with respect to a trackable reference;

positioning the patient in a given posture with respect to a plane of reference; and

digitizing the plane of reference with respect to the trackable reference such that orientation information associating the frame of reference to the given posture is calculable as a function of the orientation of the plane of reference.

16. The method according to claim 15, wherein the frame of reference comprises a frontal plane defined with outermost points of the anterior-

superior iliac spines and an outermost point of any one of the pubic tubercles.

17. The method according to claim 16, wherein the given posture has a medio-lateral value defined by an angle between an axis lying in the frontal plane and being parallel to a segment passing through the outermost points of the anterior-superior iliac spines, and the plane of reference.

18. The method according to claim 16, wherein the given posture has an anterior-posterior value defined by an angle between an axis lying in the frontal plane and being perpendicular to a segment passing through the outermost points of the anterior-superior iliac spines, and the plane of reference.

19. The method according to claim 16, wherein the given posture has the back of the patient lying on the plane of reference.

20. The method according to any one of claims 15 to 19, wherein the method is performed on an anatomical bone model or on a cadaver.